

ABSTRACT OF THE DISCLOSURE

A method for fabricating a semiconductor device includes the following steps. At first, a Ru or RuO₂ film and a SiO₂ layer are formed over a Si substrate in that order. Then, a resist pattern is formed on the SiO₂ layer and is then provided as a mask to etch the SiO₂ layer to form a contact hole. The Ru or RuO₂ film is exposed at the bottom of the contact hole.

Subsequently, a plasma ashing is performed using an ashing gas prepared by mixing O₂ with N₂ where the composition ratio of N₂ is 50 % or more at a substrate temperature of 200 °C or more for ashing the resist pattern. Consequently, the present invention allows the ashing of the resist pattern over the Ru or RuO₂ film at a high selectivity to prevent the Ru or RuO₂ film from becoming disappeared.